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XIII.—AN ATTEMPT TO TRAIN THE VISUAL MEMORY.

BY ELLEN BLISS TALBOT.

During the university year 1895-'96, I made a systematic effort to overcome some of the defects of my visual memory. The results gained are not startling, but a brief account of the experiment may be useful to others by way of suggestion.

At the beginning of the year, my attention was called to the fact—which had never particularly impressed me before—that my visual memory was rather defective. Unfortunately, at that time I had had no training in introspection; and in describing my memory as it was before the beginning of the exercises, I must rely somewhat upon subsequent recollections instead of depending wholly upon introspection made at the time. Where this has been the case, however, the fact will be explicitly stated.

The chief points that I noticed in regard to my memory were these :

(1) It was predominantly verbal-auditory and verbal-motor, with the first factor a little in the lead.

(2) The direct visual memory was somewhat developed, though not to the same degree as in most persons. *E. g.*, the name of some one whom I knew rather well would almost invariably call up a visual image, and with some effort I could make its details (form and color) fairly distinct. On the other hand, as I now see upon looking back, class-names very seldom called up a visual impression.

(3) My verbal-visual memory was very defective. Dates I ordinarily visualized, but not words. So far as I know, I had never at this time had a visual picture of a written or printed word. Of course it is possible, however, that, just as one may have a visual local sign without being aware of it until one's attention is called to the matter, so I may have had verbal-visual images, which served their purpose in associations without rising into distinct consciousness.

(4) When I was listening to something that was read aloud, my impressions took the form almost exclusively of verbal-auditory and verbal-motor images. I never consciously visualized the words uttered by the reader, and only rarely did I picture objects or scenes represented by them. What I seemed to do, for the most part, was to hear the words again in my own voice and to feel them forming in my throat. This was the case, at least, when I was listening to anything that was somewhat hard to follow. When listening to something simpler, I was less often conscious of translating from the reader's voice and intonation into my own; but even here, I had few direct visual and, I think, no verbal-visual images.

Professor Titchener, whom I asked to recommend some exercises for training the visual memory, suggested two, both of which were used. In each of them I worked with a companion whose visual memory was also defective. The account will be confined, however, to my own case, as my visual memory was the poorer of the two, and as the results were more marked with it than with the other.

For one exercise, we used poems containing lines of very unequal length. One of us would read to herself a few lines, paying special attention to their appearance on the page, then close her eyes and describe to the other the position of the lines, their relative length, and any other details that had been noticed with regard to the general appearance of the page. The assistant would draw the lines as directed; and when this had been done the result would be compared with the page in the book and all mistakes marked.

In the other exercise we used colored Japanese pictures. One of these was exposed to the view of the subject for ten seconds, and she was then required to indicate by a rough sketch, supplemented by an oral description, the distribution of colors in the picture, and, as far as possible, the objects represented. The assistant compared the sketch with the original without showing the latter to the subject, and passed judgment upon the value of the work.

The amount of time given to these exercises was from one and a half to two hours a week. To the pictures we usually gave two periods of thirty minutes each; and to the poetry two or three periods of from twenty to thirty minutes each. The exercises were continued from the latter part of October till the middle of May. There were two breaks, however, of about three weeks each; and during the rest of the time we were not able to practice so regularly as might have been desired.

With the poetry my work improved steadily from first to last.

At the outset six or seven lines was as much as I could keep in mind at once ; near the close of the work I could sometimes give from twenty to twenty-five without a mistake. It must be confessed, however, that I did not always succeed in making my memory purely visual ; often I found myself remembering the length of a line in terms of eye-movement.

With the pictures the progress was not so evident. Naturally, it was harder in this case to say whether one was improving or not ; especially as each picture in the set was given several times. I am inclined to think that there was a slight improvement, but it certainly was not marked.

The direct results of the exercises, however, did not particularly concern us ; the task had been undertaken rather for the sake of the indirect results. About three months after the beginning of the work I noticed that the visual factor was usually, if not always, present when I tried to spell a word orally. Shortly after this it occurred to me to make a definite attempt to visualize words. I found myself able to visualize familiar ones of three or four letters, but when I tried a longer or less familiar word, the best that I could do was to spell it out letter by letter instead of seeing it as a whole. At this time the visualization of even short words came only by definite effort ; at least, I was never conscious of visualizing them without trying to do so.¹ Toward the close of the university year, however, I found that with a slight effort I was able to visualize long words as wholes, and that occasionally, without any effort, I had a visual image of a word of several syllables. Somewhat later, when the exercises had been discontinued for about four months, I began to visualize words a little when listening to a reader. At the present time, seven months after the conclusion of the work, I notice considerable improvement, both in the direct visual and in the verbal-visual memory. In attempting very recently to commit some poetry, I found myself depending to a considerable extent upon my verbal-visual memory, whereas a year and a half ago I should have relied wholly upon my verbal-auditory and verbal-motor memories. The effect of the change was apparent rather in greater accuracy than in increased speed of memorizing. In my general reading, too, I have more

¹The ability to visualize short words and the presence of the visual element in oral spelling do not necessarily indicate any improvement. Perhaps if I had thought of trying to visualize words before the exercises began, I should have been able to do so. As for the spelling, I became conscious of the visual element in it in consequence of a question that was asked me ; and it may very well be that if the question had been asked three months earlier the visual element would have been discovered then.

pictures than I used to have. I am not conscious of visualizing any *better* than formerly—*i. e.*, with any more detail,—but I am conscious of visualizing *more frequently*.

It should be observed that while the exercises seemed more likely to affect the *direct* visual memory, the greater improvement and the one first noticed was in the *verbal*-visual. This may be due to the fact that the verbal-visual memory was the more defective, and that therefore a slight improvement in it would be more likely to attract attention.

It is difficult, of course, to say how much of the improvement should be attributed to the use of the exercises, and how much to the fact that I have begun to pay attention to my visual memory and have been on the alert for instances of its working. However this may be, I am sure, at any rate, that my conscious dependence upon it is greater than it used to be, and also that it comes into play, without effort on my part, more frequently than before. It is still the case that my memory is predominantly verbal-auditory and verbal-motor; but the visual memory has improved; and there seems to be reason to suppose that the improvement has not yet come to an end. Moreover, I cannot see that the auditory and motor memories have suffered any loss from the improvement of the visual.